

THE LIST OF THE SUBFAMILY HELICONIINAE (LEPIDOPTERA:
NYMPHALIDAE) COLLECTED IN THE SANTA MARTA MOUNTAINS
AND ITS VICINITY, COLOMBIA, SOUTH AMERICA

MAYUMI TAKAHASHI

11-13-5, Kita-Andô, Shizuoka-shi, Shizuoka-ken

The subfamily Heliconiinae (Nymphalidae) are distributed only in the New World, and include many species in the tropical and subtropical region of Central and South America. The author reports here the list of Heliconiinae with some ecological notes, which were surveyed and collected by the 1st Scientific Expedition of Shizuoka University to the Colombian Andes, 1967.

The author expresses his thanks to the late Mr. Tarô Iwase, Mr. Akito Kawazoe, Dr. Kôroku Negishi and Mr. Morio Wakabayashi who offered him conveniences of investigating literature, and also to Dr. Ryûichi Tsuchi and Mr. Takeshi Sugimoto who helped him through the butterfly survey in that expedition.

1. *Philaethria dido* (Clerck)

Only one specimen was collected. The male was found resting on a leaf with its wings opened or semi-opened and pursuing other insects in its territory.

1♂, El Limón (1450 m), Magdalena, Sept. 5, 1967, M. Takahashi.

2. *Dryadula phaetusa phaetusa* (Linnaeus)

This species was found in the sunny waste land of the tropical zone, but not so common as *Agraulis vanillae*. It was observed visiting various flowers, for example, *Heliotropium* sp. (Boraginaceae), with its wings opened or semi-opened. Its flight is not so rapid as *Agraulis vanillae* and *Dryas iulia*.

1♂, Barranquilla (1-2 m), Atlántico, June 2, 1967, T. Sugimoto; 2♂♂ Barranquilla (1-2 m), Atlántico, June 5, 1967, T. Sugimoto & M. Takahashi; 1♀, Barranquilla (1-2 m), Atlántico, June 6, 1967, M. Takahashi; 1♂, Barranquilla (1-2 m), Atlántico, June 21, 1967, M. Takahashi; 1♂, Barranquilla (1-2 m), Atlántico, July 18, 1967, M. Takahashi; 1♂, near Juan Mina (30 m), Atlántico, June 11, 1967, T. Sugimoto; 1♂, 1♀, near Juan Mina (30 m), Atlántico, June 14, 1967, M. Takahashi; 1♂, near Punta Barroblanco (40 m), Magdalena, July 24, 1967, T. Sugimoto.

3. *Agraulis vanillae vanillae* (Linnaeus)

It is the most common species of the Heliconian butterflies in the sunny waste land and pasture of the tropical zone, and not seen in the mountainous area of the subtropical zone. The flight is very rapid without gliding as well as that of *Dione glycera*. It visits various flowers, mingling with *Precis lavinia*, *Danaus gilippus* and *D. eresimus*, specially in the early morning.

1♂, 1♀, Barranquilla (1-2 m), Atlántico, June 2, 1967, M. Takahashi; 5♂♂, 2♀♀, Barranquilla (1-2 m), Atlántico, June 5, 1967, T. Sugimoto & M. Takahashi; 2♂♂, 1♀, Barranquilla (1-2 m), Atlántico, June 6, 1967, T. Sugimoto & M. Takahashi; 3♂♂, Barranquilla (1-2 m), Atlántico, July 18, 1967, M. Takahashi; 3♂♂, 6♀♀, near Juan Mina (30 m), Atlántico, June 11, 1967, T. Sugimoto; 6♂♂, 2♀♀, near Juan Mina (30 m), Atlántico, June 14, 1967, T. Sugimoto & M. Takahashi; 1♂, Filtros de Agua (40 m), Magdalena, June 18, 1967, M. Takahashi; 1♂, El Carmen (500 m), Río Piedras, Magdalena, Aug. 25, 1967, M. Takahashi; 1♂, near El Mico (900 m), Magdalena, Sept. 5, 1967, M. Takahashi; 3♂♂, 4♀♀, near Valledupar (100-175 m), Cesar, July 5, 1967, T. Sugimoto & M. Takahashi; 2♂♂, Jeréz del Río (50 m), Guajira, July 21, 1967, M. Takahashi.

4. *Dione juno juno* (Cramer)

This species was found in the mountainous area. One male was observed visiting the wet ground to drink water in Chemesquemena, Río Guatapuri.

1♂, Chemesquemena (1150 m), Río Guatapuri, Cesar, June 8, 1967, M. Takahashi; Donachúi-Sogrome (1500 m), Río Donachúi, Cesar, June 28, 1967, M. Takahashi; 1♂, Sogrome-Sacaracungüe (1700-1900 m), Río Donachúi, Cesar, July 2, 1967, M. Takahashi.

5. *Dione glycera* (C. & R. Felder)

This species inhabits only in the mountainous area upper than 1500 m and attains to 3000 m in altitude. It was observed flying very rapidly and visiting white flowers of *Rubus* (Rosaceae).

1♀, San Lorenzo (1900-2100 m), Magdalena, July 11, 1967, M. Takahashi; 1♂, San Lorenzo (1900-2100 m), Magdalena, July 13, 1967, T. Sugimoto. 1♂, San Lorenzo (1900-2100 m), Magdalena, July 15, 1967, T. Sugimoto. 4♂♂, Pico Kennedy (2867 m), Magdalena, July 14, 1967, T. Sugimoto & M. Takahashi; 1♂, 1♀, near Melloaca (Meollaca?) (3470-3000 m), Río Donachúi, Cesar, June 30, 1967, M. Takahashi; 1♂, 1♀, near Melloaca (Meollaca?) (3000-2800 m), Río Donachúi, Cesar, June 30, 1967, M. Takahashi.

6. *Dryas iulia iulia* (Fabricius)

This species was found in the sunny grassland of the low mountains, flying rapidly without gliding, and visiting flowers.

1♂, Loma El Medio (400 m), Río Piedras, Magdalena, July 30, 1967, M. Takahashi; 1♂, 1♀, Quebrada Manzanares (200-500 m), Río Piedras, Magdalena, July 31, 1967, M. Takahashi; 1♂, near San Isidro de la Sierra (500 m) Río Piedras, Magdalena, Aug. 23, 1967, M. Takahashi; 2♂♂, 1♀, El Mico-El Limón (900-1100 m), Magdalena, Sept 5, 1967, M. Takahashi.

7. *Heliconius (Eueides) alipherus* (Godart)

This species inhabits the forest side of the tropical zone. The male was observed fluttering its wings mincingly above the sunny open space of the forest, and drawing a narrow circle.

1♂, Río Menguaca (50-80 m), Magdalena, July 29, 1967, M. Takahashi; 1♂, Quebrada Santa Teresa (550 m), Río Piedras, Magdalena, Aug. 3, 1967, M. Takahashi.

8. *Heliconius (Eueides) edias edias* Hewitson

This species was found in the sunny space of the evergreen forest of San Lorenzo, on the north-western slope of the Santa Marta Mountains. It was observed flying gently and visiting various flowers, scarcely passing near the ground.

3♂♂, San Lorenzo (1400-1600 m), Magdalena, July 11, 1967, T. Sugimoto & M. Takahashi; 1♀, San Lorenzo (1400-1600 m), Magdalena, July 12, 1967, M. Takahashi; 1♂, 1♀, San Lorenzo (1400-1600 m), Magdalena, July 13, 1967, T. Sugimoto & M. Takahashi; 2♀♀, San Lorenzo (1400-1600 m), Magdalena, July 15, 1967, T. Sugimoto & M. Takahashi; 2♀♀, San Lorenzo (1400-1600 m), Magdalena, July 16, 1967, T. Sugimoto & M. Takahashi.

9. *Heliconius (Eueides) isabellae isabellae* (Cramer)

This species was found in the sunny space of the tropical rain forest, flying gently like the butterfly of the Ithomiinae (Danaiidae).

1♂, Quebrada Constante (200-400 m), Río Piedras, Magdalena, Aug. 1, 1967, M. Takahashi; 1♀, Quebrada Cinto (200-280 m), near Río Piedras, Magdalena, Aug. 2, 1967, M. Takahashi; 1♀, El near Mico (900-1100 m), Magdalena, Sept. 6, 1967, M. Takahashi.

10. *Heliconius (Heliconius) ethillus* Godart

Two forms of this species was found in the north-western and south-eastern slope of the Santa Marta Mountains respectively.

10a. *H. (H.) e. f. melicertus* Bates

This form was found in the forest side of the tropical zone of Río Piedras, Magdalena.

1♂, Quebrada Manzanares (100-150 m), Río Piedras, Magdalena, July 31, 1967, M. Takahashi; 1♂, Quebrada Santa Teresa (150 m), Río Piedras, Magdalena, Aug. 3, 1967, M. Takahashi.

10b. *H. (H.) e. f. semiflavus* Weymer.

This form was found mainly in the subtropical zone of Río Donachú, Cesar. The androconia and the male genitalia of both the forms, *melicertus* and *semiflavus*, are shown in figs. 43, 44, 53 and 54.

1♂, Quebrada Manzanares (100-150 m), Río Piedras, Magdalena, July 31, 1967, M. Takahashi; 1♂, Chemesquemena (1150 m), Río Guatapuri, Cesar, June 8, 1967, T. Sugimoto; 1♂, 3♀, Donachú (1400 m), Río Donachú, Cesar, June 27, 1967, M. Takahashi; 1♂, Donachú (1400 m), Río Donachú, Cesar, June 28, 1967, T. Sugimoto; 4♂♂, 1♀, Donachú (1400 m), Río Donachú, Cesar, July 2, 1967, T. Sugimoto; 1♂, Donachú, (1400 m), Río Donachú, Cesar, July 3, 1967, M. Takahashi; 1♂, Donachú-Chemesquemena (1400-2000 m), Cesar, July 3, 1967, M. Takahashi.

11. *Heliconius (Heliconius) melpomene* (Linnaeus)

This species inhabits the forest side of the tropical zone. The habitats are seen sometimes in higher altitude than those of *H. (H.) erato*. Its flight is gentle as well as *H. (H.) erato*. All specimens collected in the expedition belong to the form *melpomene* which has a large red patch on the forewing, without any yellow bar on the hind wing.

1♂, Río Mendiguaca (50-80 m), Magdalena, July 29, 1967, M. Takahashi; 1♂, 1♀, Loma El Medio (450 m), Río Piedras, Magdalena, July 30, 1967, M. Takahashi; 1♂, Quebrada Manzanares (100-150 m), Río Piedras, Magdalena, July 31, 1967, M. Takahashi; 3♂♂, Quebrada Constante (180-430 m), Río Piedras, Magdalena, Aug. 1, 1967, Takahashi; 3♂♂, Quebrada Cinto (200-280 m), near Río Piedras, Magdalena, Aug. 2, 1967, M. Takahashi; 1♂, 1♀, San Isidro de la Sierra (450 m), Río Piedras, Magdalena, Aug. 23, 1967, M. Takahashi; 1♂, El Carmen (500 m), Río Piedras, Magdalena, Aug. 25, 1967, M. Takahashi; 1♀, San Lorenzo (1500-1800 m), Magdalena, July 13, 1967, T. Sugimoto.

12. *Heliconius (Heliconius) erato* (Linnaeus)

This species is found in the sunny forest side of the tropical zone, sometimes accompanied with *H. (H.) melpomene*. It prefers the low land and thin woods to *H. (H.) melpomene*. All the specimens collected in the expedition belong to the form *hydarus* which has very similar coloration to that of the form *melpomene* of *H. (H.) melpomene*. It was difficult to distinguish this species from *melpomene* while flying. The fact suggests, the relation between the two species to be Müllerian mimicry.

1♀, Barranquilla (1-2 m), Atlántico, June 6, 1967, M. Takahashi; 1♀, near Juan Mina (30 m), Atlántico, June 11, 1967, T. Sugimoto; 1♀, near Puerto Colombia (100 m), Atlántico, June 13, 1967, M. Takahashi; 5♀, Ciénaga (1-2 m), Magdalena, Aug. 21, 1967, M. Takahashi; 1♀, Río Mendiguaca (50-80 m), Magdalena, July 29, 1967, M. Takahashi; 1♂, 1♀, La Esmeralda (100 m), Río Piedras, Magdalena, July 28, 1967, M. Takahashi; 2♂♂, Loma El Medio (200-450 m), Río Piedras, Magdalena, July 30, 1967, M. Takahashi; 1♂, Quebrada Constante (180-430m), Río Piedras, Magdalena, Aug. 1, 1967, M. Takahashi; 1♂, La Gran Vía-Los Limones (40-100 m), Magdalena, Sept. 5, 1967, M. Takahashi; 2♀, La Gran Vía-Los Limones (40-100 m), Magdalena, Sept. 6, 1967, M. Takahashi; 1♀, Cuestesita (100 m), Guajira, July 22, 1967, M. Takahashi; 1♂, 3♀, Asunción (20 m), Guajira, July 21, 1967, T. Sugimoto & M. Takahashi.

13. *Heliconius (Heliconius) clysonimus clysonimus* Latreille

This species inhabits the mountainous area upper than 500 m and attains more than 2000 m in altitude. It flies rather rapidly than other Heliconian butterflies and sometimes passes near the ground through the pass way.

The activity of this species was seen also in the cloudy whether, sometimes even in the rain. It visits the white flowers of *Rubus* (Rosaceae), with its wings opened. Generally, the individuals found in the south-eastern slope of the Santa Marta Mountains, including Río Donachúi, are smaller than those in the north-western slope of that mountains, including San Lorenzo (table 2).

1♂, San Lorenzo (1300-1400 m), Magdalena, July 10, 1967, T. Sugimoto; 10♂♂, 1♀, San Lorenzo (1400-2100 m), Magdalena, July 11, 1967, T. Sugimoto & M. Takahashi; 6♂♂, 1♀, San Lorenzo (1400-2100 m), Magdalena, July 12, 1967, T. Sugimoto & M. Takahashi; 6♂♂, San Lorenzo (1400-2100 m), Magdalena, July 13, 1967, T. Sugimoto & M. Takahashi; 8♂♂, San Lorenzo (1400-2100 m), Magdalena, July 15, 1967, T. Sugimoto & M. Takahashi; 1♂, San Lorenzo (1500-2100 m), Magdalena, July 16, 1967, T. Sugimoto; 4♂♂, 2♀♀, San Lorenzo (1900-2100 m), Magdalena, July 17, 1967, T. Sugimoto & M. Takahashi; 1♂, Chemesquemena-Donachúi (1600-2050 m), Cesar, June 26, 1967, M. Takahashi; 2♂♂, Donachúi-Chemesquemena (1600-2050 m), Cesar, July 3, 1967, M. Takahashi; 1♂, 1♀, Donachúi (1400 m), Río Donachúi, Cesar, June 27, 1967, T. Sugimoto & M. Takahashi; 1♂, Donachúi (1400 m), Río Donachúi, Cesar, June 28, 1967, T. Sugimoto; 2♂♂, Donachúi (1400 m), Río Donachúi, Cesar, July 3, 1967, M. Takahashi; 2♂♂, Donachúi-Sogrome (1400-1600 m), Río Donachúi, Cesar, June 28, 1967, T. Sugimoto & M. Takahashi; 1♂, Sacaracungüe-Sogrome (1900-1600 m), Río Donachúi, Cesar, July 1, 1967, M. Takahashi; 1♂, Sogrome-Sacaracungüe (1600-1900 m), Río Donachúi, Cesar, July 2, 1967, M. Takahashi.

14. *Heliconius (Heliconius) charithonius bassleri* Comstock & Brown

This species inhabits the open space of the tropical rain forest. It flies fluttering rather vigorously than the other Heliconian butterflies and visits various flowers. The male draws a circle about 2-3 m in height above the ground in its territory.

1♂, Río Mediguaca (50-80 m), Magdalena, July 29, 1967, M. Takahashi; 1♂, San Isidro de la Sierra (450 m), Río Piedras, Magdalena, Aug. 22, 1967, M. Takahashi; 1♂, El Carmen (500 m), Río Pieras, Magdalena, Aug. 25, 1967, M. Takahashi; 1♂, near El Mico (900-1100 m), Magdalena, Sept. 6, 1967, M. Takahashi; 1♂, Chemesquemena-Donachúi (1200-1400 m), Cesar, June 26, 1967, M. Takahashi; 1♂, Donachúi (1200 m), Río Donachúi, Cesar, June 27, 1967, M. Takahashi.

15. *Heliconius (Heliconius) eleuchius* Hewitson

The species was found only in San Lorenzo on the north-western slope of the Santa Marta Mountains. It flies most gently among 15 species of the Heliconiinae collected in the expedition.

1♀, San Lorenzo (1300-1600 m), Magdalena, July 10, 1967, T. Sugimoto; 3♂♂, San Lorenzo (1400-1600 m), Magdalena, July 11, 1967, M. Takahashi; 2♂♂, 2♀♀, San Lorenzo (1400-1600 m), Magdalena, July 12, 1967, T. Sugimoto & M. Takahashi; 11♂♂, 5♀♀, San Lorenzo (1400-1600 m), Magdalena, July 13, 1967, T. Sugimoto & M. Takahashi; 5♂♂, San Lorenzo (1400-1600 m), Magdalena, July 15, 1967, T. Sugimoto & M. Takahashi; 1♀, Sogrome (1600 m), Río Donachúi, Cesar, June 28, 1967, T. Sugimoto.

References

- Brown, K. S. (1972) The Heliconians of Brasil (Lepidoptera: Nymphalidae). Part 3. Ecology and Biology of *Heliconius nattereri*, a key primitive species near extinction, and comments on the evolutionary development of *Heliconius* and *Eueides*. *Zoologica* 57: 41-69.
- Brown, K. S. & Mielke, O. H. H. (1972) The Heliconians of Brasil (Lepidoptera: Nymphalidae). Part 2. Introduction and general comments, with a supplementary revision of the tribe. *Zoologica* 57: 1-40.
- Emsley, M. (1963) A morphological study imagine Heliconiinae (Lep.: Nymphalidae) with a consideration of the evolutionary relationships within the group. *Zoologica* 48: 85-130.
- (1964) The geographical distribution of the color-pattern components of *Heliconius erato* and *Heliconius melpomene* with genetical evidence for the systematic relationship between the two species. *Zoologica* 49: 245-286.
- (1965) Speciation in *Helionius* (Lep., Nymphalidae): Morphology and geographic distribution. *Zoologica* 50: 191-254.

Table 1. Collected numbers of *Heliconiinae* in the Santa Marta Mountains and its vicinity.

	Climatic zone		Tropical z.					Subtropical z.				Temperate z.		Total	
	Surveyed area*		A	B	C	D	E	F	G	H	I	J	K		L
Species															
<i>Philaethria dido</i>		—	—	—	—	—	—	—	—	1	—	—	—	1	1
<i>Dryadula phaetusa</i>		9	1	—	—	—	—	—	—	—	—	—	—	—	10
<i>Agraulis vanillae</i>		33	1	1	—	7	2	—	—	1	—	—	—	—	45
<i>Dione juno</i>		—	—	—	—	—	—	—	—	—	1	2	—	—	3
<i>D. glycera</i>		—	—	—	—	—	—	—	3	—	—	—	4	4	11
<i>Dryas iulia</i>		—	—	4	—	—	—	—	—	3	—	—	—	—	7
<i>Heliconius alipherus</i>		—	—	2	—	—	—	—	—	—	—	—	—	—	2
<i>H. edias</i>		—	—	—	—	—	—	—	10	—	—	—	—	—	10
<i>H. isabellae</i>		—	—	2	—	—	—	—	—	1	—	—	—	—	3
<i>H. ethillus</i> f. <i>melicertus</i>		—	—	2	—	—	—	—	—	—	—	—	—	—	2
<i>H. ethillus</i> f. <i>semiflavivus</i>		—	—	1	—	—	—	—	—	—	—	13	—	—	14
<i>H. melpomene</i>		—	—	13	—	—	—	—	1	—	—	—	—	—	14
<i>H. erato</i>		3	5	6	3	—	5	—	—	—	—	—	—	—	22
<i>H. clysonimus</i>		—	—	—	—	—	—	—	40	—	—	12	—	—	52
<i>H. charithonius</i>		—	—	3	—	—	—	—	—	1	1	—	—	—	5
<i>H. eleuchius</i>		—	—	—	—	—	—	—	30	—	—	—	—	—	30
Total		45	7	83	3	7	7	—	84	7	2	27	4	4	231

* A: Barranquilla and its vicinity (1–100 m); B: Ciénaga–Santa Marta (1–40 m); C: Río Piedras and its vicinity (100–550 m); D: La Gran Vía –Los Limones (40–100 m); E: near Valledupar (100–175 m); F: Jeréz del Río (50 m); G: San Lorenzo (1300–2160 m); H: El Mico—El Limón (900–1450 m); I: Chemesquemena (1150 m); J: Río Donachúi (1200–2000 m); K: Pico Kennedy (2867 m); L: Melloaca (Meollaca?) (2800–3470 m).

Table 2. The forewing length of *Heliconius* (*Heliconius*) *clysonium clysoniums* Latreille in two districts of the Santa Marta Mountains.

District	Sex	Number of materials	Forewing length (mm)		
			Mean value	Maximum v.	Minimum v.
San Lorenzo	♂	31	41.2±0.47	44.0	38.1
Río Donachúi	♂	11	36.3±1.95	41.9	30.4
San Lorenzo	♀	6	41.1±1.17	42.8	38.8
Río Donachúi	♀	1	33.4	—	—

Neustetter, H. (1929) *Fam. Nymphalidae, Subfam. Heliconiinae. K Lepidopteron Catalogus*. W. Junk, Berlin.

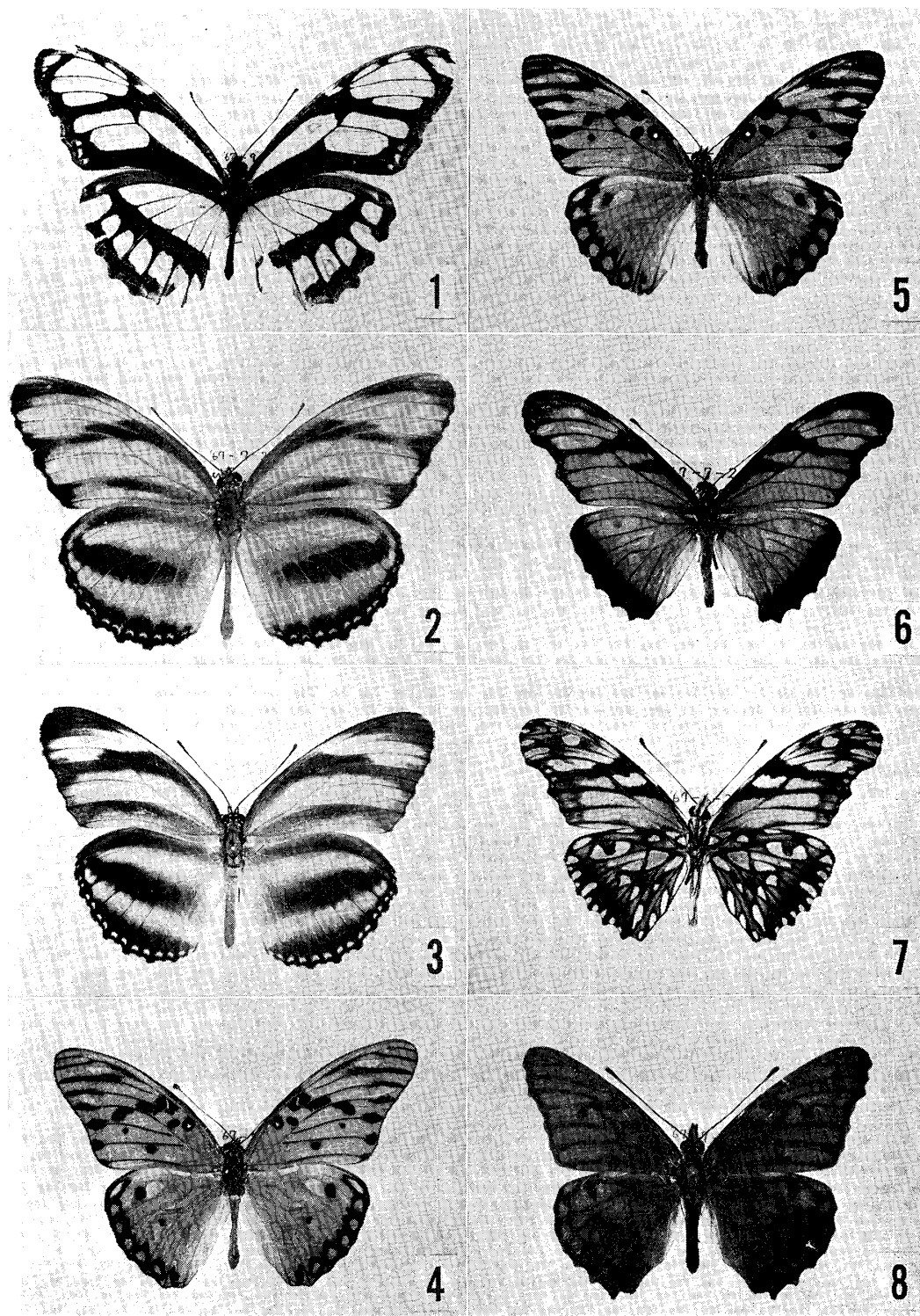
Seitz, A. (1924) *Die Gross-Schmetterlinge der Erde* 5. A. Kernen Verlag, Stuttgart.

Stichel, H. & Riffarth, H. (1905) *Heliconiidae. Das Tierreich*. Verlag von R. Friedländer und Sohn, Berlin.

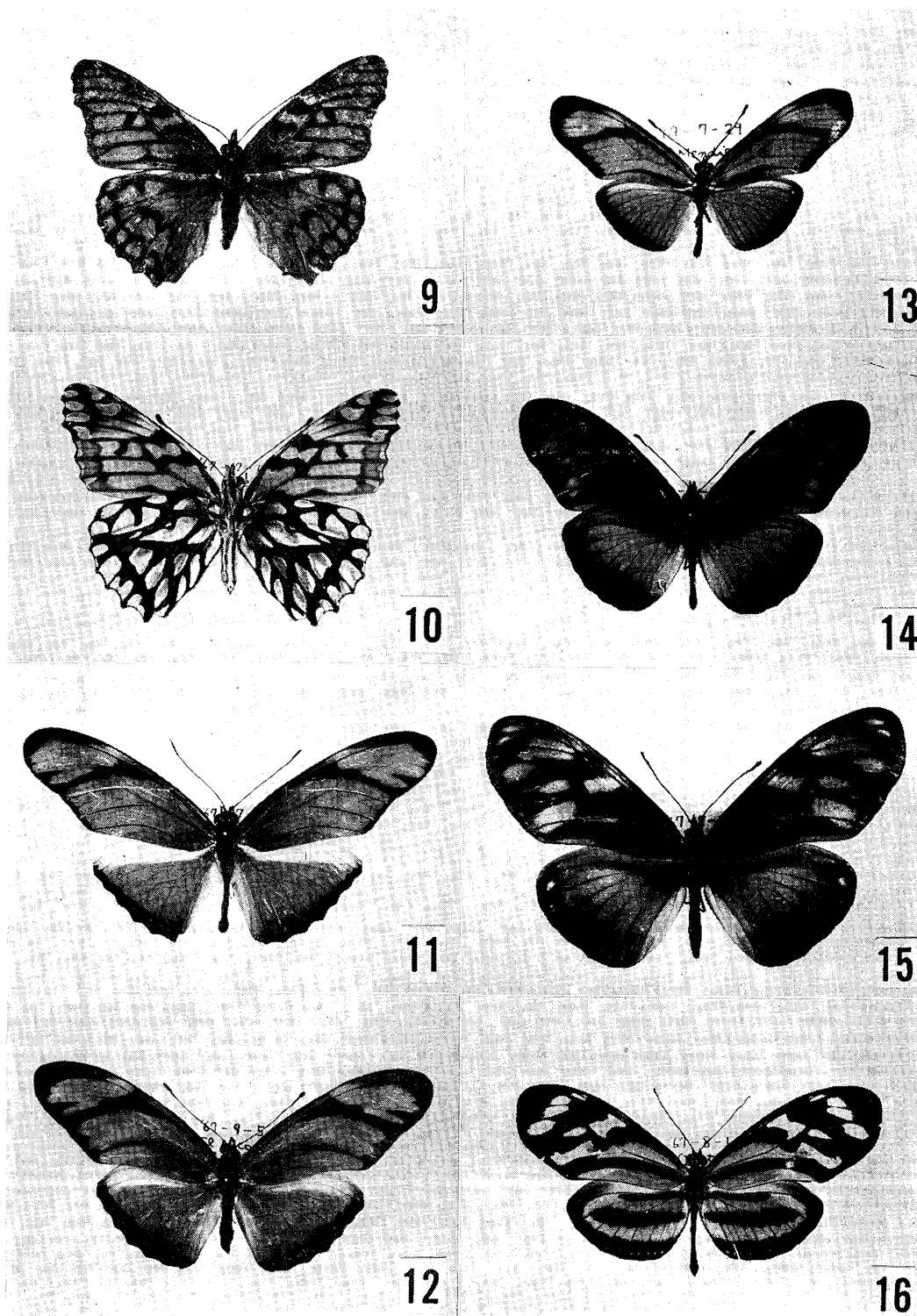
Takahashi, M. (1968) Butterflies of the Colombian Andes. *The Nature and Insects* 3 (8): 9–14. (In Japanese).

——— (1971) Butterfly fauna of the Santa Marta Mountains, Northern Colombia, South America. Entomological Report from the 1st Scientific Expedition of Shizuoka University to the Colombian Andes, 1967. *Shizuoka-Daigaku-Chigaku-Kenkyû-Hôkoku* [Geol. Rep. Shizuoka Univ.] 2 (2): 119–127. (In Japanese).

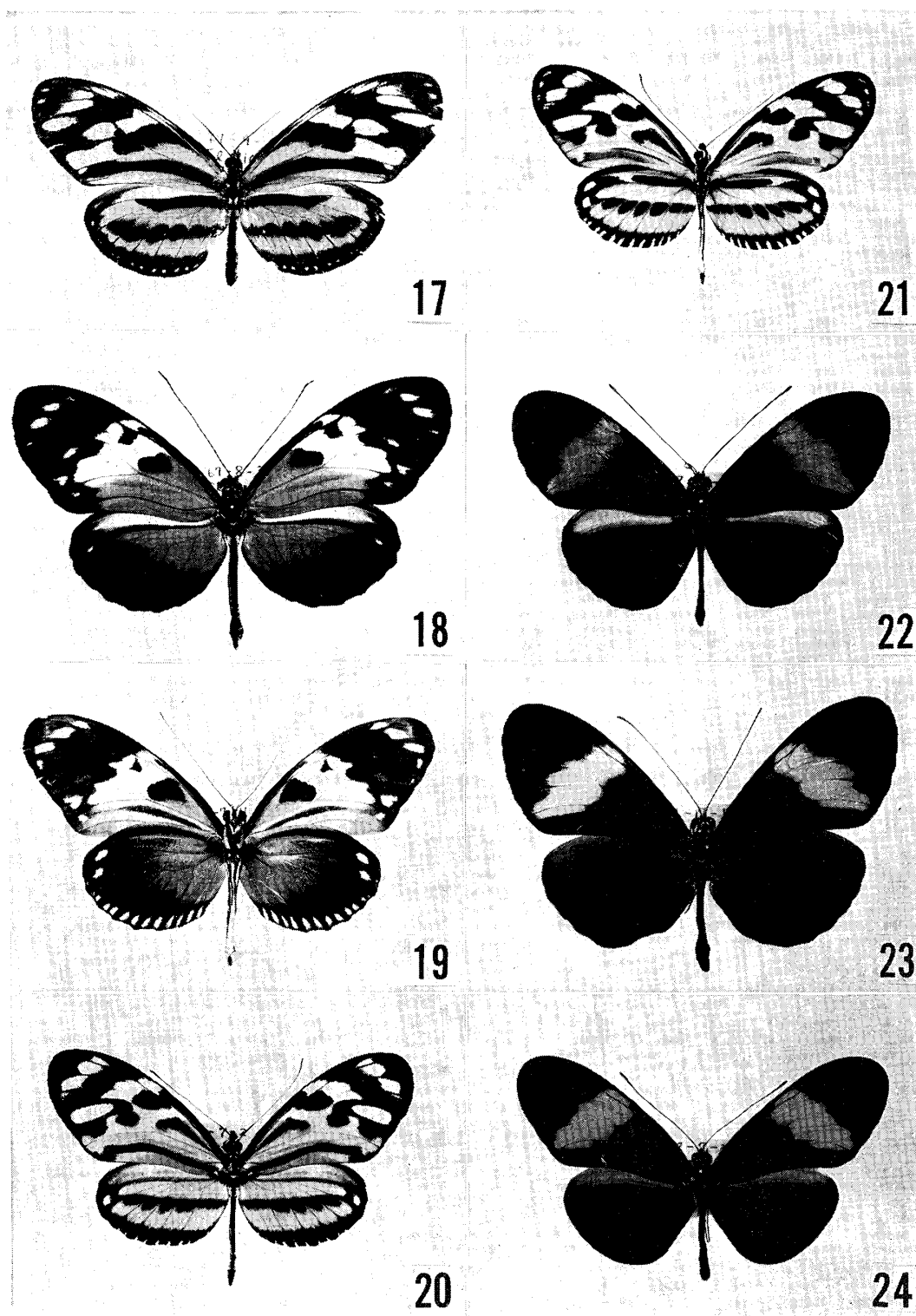
Takahashi, M. & Tsuchi, R. (1969) Notes on butterflies from Sierra Nevada de Santa Marta and the vicinity, Colombia, South America. *Rep. Fac. Sci. Shizuoka Univ.* 4: 107–112.



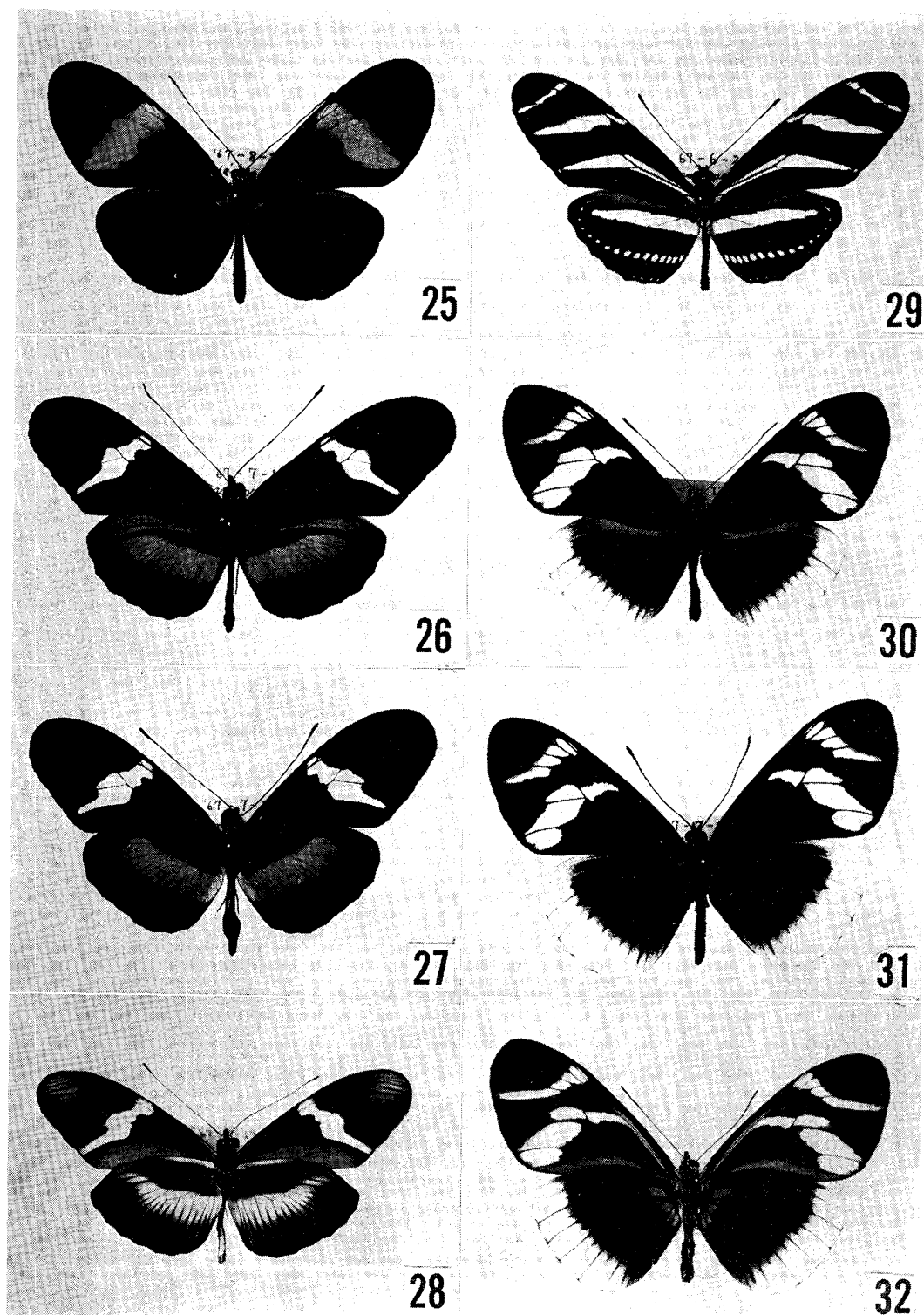
Figs. 1-8. Heliconiinae: (1) *Philaethria dido* (Clerck), ♂, El Limón, Sept. 5, FL (forewing length) 52.8 mm; (2) *Dryadula phaetusa* (Linnaeus), ♂, near Punta Barroblanco, July 24, FL 43.9 mm; (3) do., ♀, Barranquilla, June 6, FL 39.6 mm; (4) *Agraulis vanillae vanillae* (Linnaeus), ♂, Barranquilla, July 18, FL 38.4 mm; (5) do., ♀, Puerto Colombia, June 13, FL 38.0 mm; (6) *Dione juno juno* (Cramer), ♂, Sogrome-Sacaracungüe, July 2, FL 34.7 mm; (7) do., underside, Donachúi-Sogrome, June 28, FL 33.7 mm; (8) *D. glycera* (C. & R. Felder), ♂, Pico Kennedy, July 14, FL 34.4 mm.



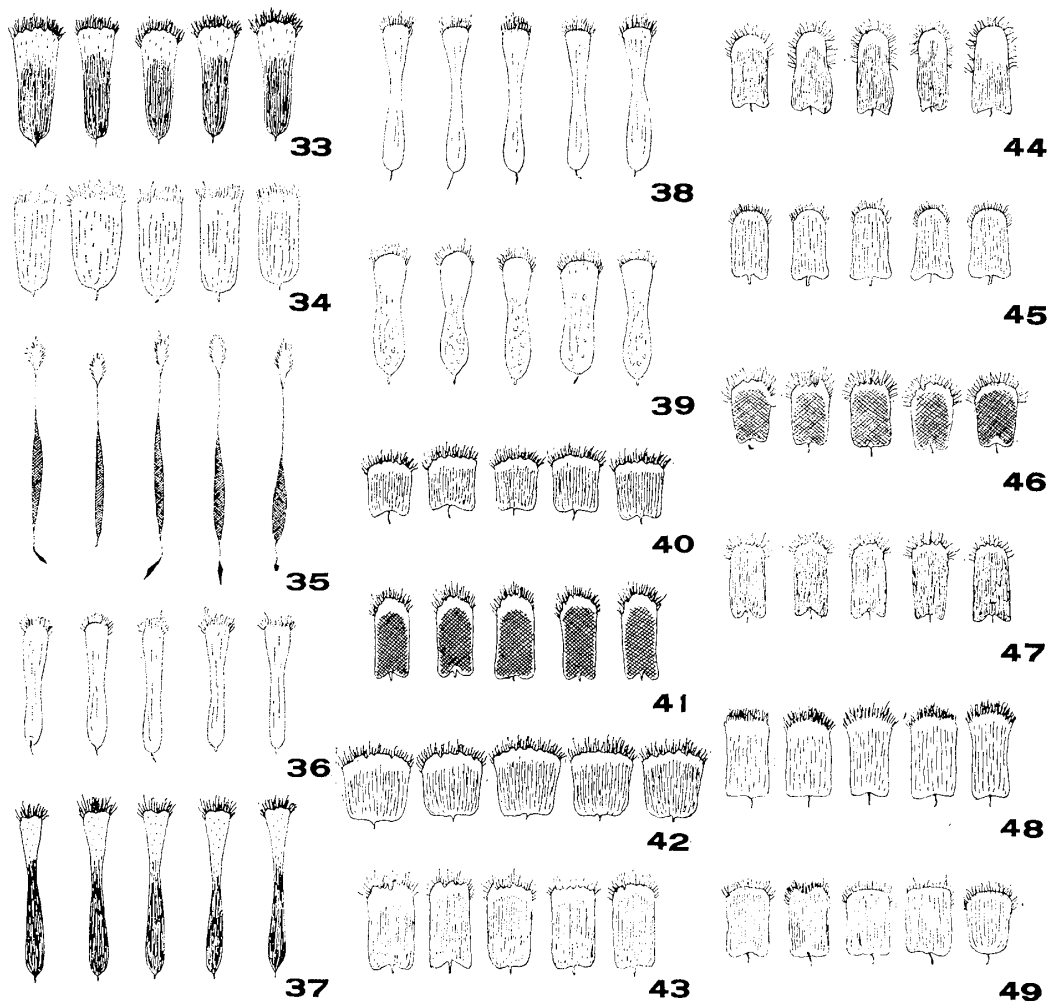
Figs. 9-16. Heliconiinae: (9) *Dione glycera* (C. & R. Felder), ♀, near Melloaca (Meollaca?), June 30, FL 30.8 mm; (10) do., underside, San Lorenzo, July 11, FL 32.7 mm; (11) *Dryas iulia iulia* (Fabricius), ♂, Loma El Medio, July 30, FL 41.6 mm; (12) do., ♀, El Mico-El Limón, Sept. 5, FL 38.9 mm; (13) *Heliconius (Eueides) alipherus* (Godart), ♂, Río Mendiguaca, July 29, FL 25.4 mm; (14) *H. (E.) edias edias* Hewitson, ♂, San Lorenzo, July 11, FL 35.4 mm; (15) do., ♀, San Lorenzo, July 15, FL 41.8 mm; (16) *H. (E.) isabellae isabellae* Cramer, ♂, Quebrada Constante, Aug. 1, FL 32.9 mm.



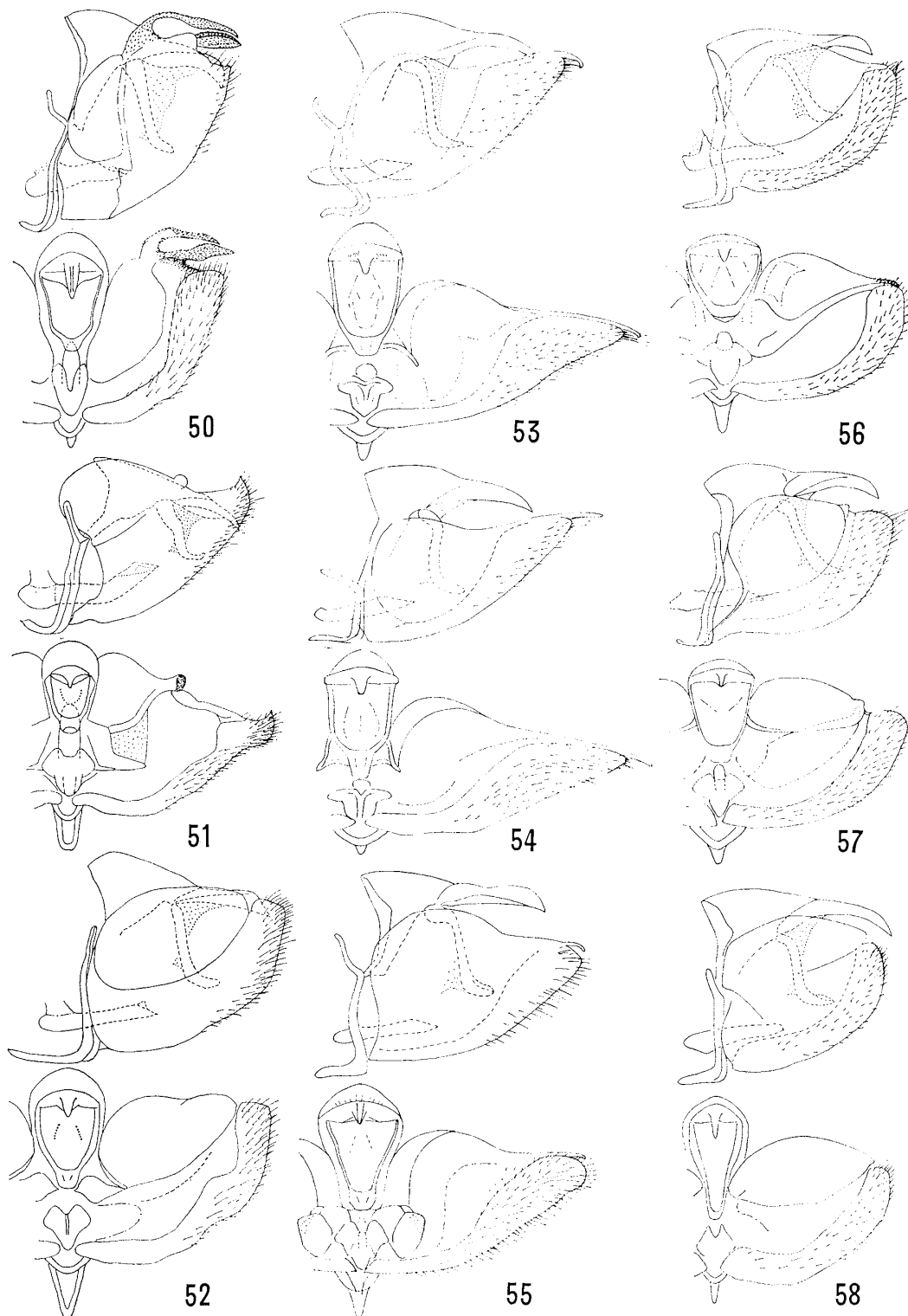
Figs. 17–24. Heliconiinae: (17) *Heliconius (Eueides) isabellae isabellae* Cramer, ♀, El Mico–El Limón, Sept. 6, FL 37.5 mm; (18) *H. (Heliconius) ethillus* f. *melicertus* Bates, ♂, Quebrada Santa Teresa, Aug. 3, FL 45.6 mm; (19) do., underside, Quebrada Manzanares, July 31, FL 47.1 mm; (20) *H. (H.) e.f. semiflavus* Weymer ♂, Donachúí, July 2, FL 43.1 mm; (21) do., underside; (22) *H. (H.) melpomene* (Linnaeus), ♂, Quebrada Manzanares, July 31, FL 37.6 mm; (23) do., ♀, San Lorezno, July 13, FL 41.4 mm; (24) *H. (H.) erato* (Linnaeus), ♂, Loma El Medio, July 30, FL 36.8 mm.



Figs. 25–32. Heliconiinae: (25) *Heliconius (Heliconius) erato* (Linnaeus), ♀, Ciénaga, Aug. 21, FL 39.4 mm; (26) *H. (H.) clysonimus clysonimus* Latreille, ♂, San Lorenzo, July 11, FL 40.7 mm; (27) do., ♀, San Lorenzo, July 17, FL 38.8 mm; (28) do., ♂, underside, San Lorenzo, July 13, FL 40.2 mm; (29) *H. (H.) charithonius bassleri* Comstock & Brown, ♂, Chemesquemena–Donachúí, June 26, FL 38.6 mm; (30) *H. (H.) eleuthius* Hewitson, ♂, San Lorenzo, July 13, FL 40.3 mm; (31) do., ♀, San Lorenzo, July 13, FL 42.7 mm; (32) do., ♂, underside, San Lorenzo, July 16, FL 41.1 mm.



Figs. 33–49. Androconia of Heliconiinae: (33) *Philaethria dido* (Clerck), HW (Hindwing); (34) *Dryadula phaetusa phaetusa* (Linnaeus), HW; (35) *Agraulis vanillae vanillae* (Linnaeus), FW (Forewing); (36) *Dione juno juno* (Cramer), FW; (37) *D. glycera* (C. & R. Felder), FW; (38) *Dryas iulia iulia* (Fabricius), FW; (39) do., HW; (40) *Heliconius (Eueides) alipherus* Godart, HW; (41) *H. (E.) edias edias* Hewitson, HW; (42) *H. (E.) isabellae isabellae* Cramer, HW; (43) *H. (Heliconius) ethillus* f. *melicertus* Bates, HW; (44) *H. (H.) e. f. semiflavus* Weymer, HW; (45) *H. (H.) melpomene* (Linnaeus), HW; (46) *H. (H.) erato* (Linnaeus), HW; (47) *H. (H.) clysonimus clysonimus* Latreille, HW; (48) *H. (H.) charithonius bassleri* Comstock & Brown, HW; (49) *H. (H.) eleuthius* Hewitson, HW.



Figs. 50–58. Male genitalia of Heliconiinae: (50) *Dryadula phaetusa phaetusa* (Linnaeus); (51) *Agraulis vanillae vanillae* (Linnaeus); (52) *Dryas iulia iulia* (Fabricius); (53) *Heliconius (Heliconius) ethillus* f. *melicertus* Bates; (54) *H. (H.) e. f. semiflavus* Weymer; (55) *H. (H.) melpomene* (Linnaeus); (56) *H. (H.) erato* (Linnaeus); (57) *H. (H.) clysonimus clysonimus* Latreille; (58) *H. (H.) eleuchia* Hewtison.

Resumen

Se publica la lista con unas notas ecológicas de la subfamilia Heliconiinae (Nymphalidae). 15 especies y 231 ejemplares de esta subfamilia fueron coleccionadas en Sierra Nevada de Santa Marta y su vecinidad, Colombia, América del Sur, por la Expedición Científica a los Andes Colombianos de la Universidad de Shizuoka, 1967. Los especímenes se preservan en la Facultad de Ciencias Naturales de la Universidad de Shizuoka.

La mayoría de estas especies se encuentra en los bosques húmedos tropicales y sualreded ores en esta región. Algunas especies, *Agraulis vanillae* y *Dryadula phaetusa*, viven en las praderas y malezas tropicales. *Heliconius* (*Eueides*) *edias*, *Heliconius* (*Heliconius*) *clysonimus* y *Heliconius* (*Heliconius*) *eleuchius* son las especies montañosas y se encuentran en la zona subtropical de estas montañas. *H. (E.) edias* fue hallada solamente en San Lorenzo, la parte de noroeste de Sierra Nevada de Santa Marta. *Dione glycera* vive principalmente en la zona templada y su distribución vertical alcanza a más de 3000 mts. sobre el nivel del mar. *H. (H.) ethillus* tiene al menos dos formas, *melicertus* y *semiflavidus*, en estas montañas. La primera fue encontrada en la parte de noroeste y la segunda en la parte de sureste de estas montañas. *H. (H.) melpomene* y *H. (H.) erato* tienen cada una forma, *melpomene* y *hydarus*, con coloración negra con roja, en que existe la relación del mimetismo.

要

約

南米コロンビア北部のサンタ・マルタ山群, およびその周辺において, ドクチョウ亜科 Heliconiinae (タテハチョウ科) に属する15種を記録した. その大部分の種は熱帯降雨林とその周辺に生息しているが, 中には *Agraulis vanillae* や *Dryadula phaetusa* のように熱帯の乾燥した荒地や牧場などの陽地にみられるものや, *Heliconius* (*Eueides*) *edias*, *H. (Heliconius)* *clysonimus* および *H. (H.) eleuchius* のように, 熱帯の低地にはみられず, 海拔1000~2000 mの亜熱帯の地域にみられるものもある. また *Dione glycera* はさらに高地にすみ, 海拔2000 m以上の温帯に多くみられ, その垂直分布の上限は海拔3000 m以上に達している. *H. (H.) ethillus* には2つの型, *melicertus* と *semiflavidus* がみられ, 前者はこの山群の西北部から, 後者はその東南部から発見された. *H. (H.) melpomene* と *H. (H.) erato* とのあいだには, ミューラーの擬態の関係がみられ, とくに黒地に赤紋をもった型が分布している.